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NEOAPLOACTIS TRIDORSALIS, A NEW GENUS AND SPECIES OF FISH FROM THE GREAT BARRIER REEF, AUSTRALIA (SCORPAENIFORMES: APLOACTINIDAE)

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ABSTRACT

Neoaploactis tridorsalis is described as a new genus and species of the fish family Aploactinidae. The species is known from one specimen collected at One Tree Island at the southern end of the Great Barrier Reef, Australia. It differs from all other aploactinids in having the initial four dorsal spines forming a separate fin and in having peculiar scales composed of a spinous flange or shelflike projection at right angles to the body, supported by an elongate diamond-shaped base embedded in the skin.

INTRODUCTION

The fish fauna at One Tree Island, Capricorn Group, near the southern end of the Great Barrier Reef, has been collected regularly over the period 1966-1975 by ichthyologists of the Australian Museum and associates from other institutions. In 1973, one of us (G.R.A.) collected a small fish taken in a rotenone poison station in 3 to 4 metres depth; it appeared to be referable to the family Aploactinidae. Despite rather intensive collection at One Tree, this specimen to our knowledge is the only aploactinid that has been collected there.

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Members of the family Aploactinidae occur in the Indo-West Pacific faunal region, and most are poorly known. Whitley (1933) reviewed the species known at that time. Subsequent descriptions (including Eschmeyer and Dor, in press) in scattered references bring the total number of nominal species in this family to 33 (Poss and Eschmeyer, 1978). It was readily apparent that the One Tree Island specimen differed from all known species in having the initial four dorsal spines forming a separate fin, the fourth and fifth spines being separated by scales. A deep notch between the eleventh and twelfth spines gives the impression of three dorsal fins. It further differed in having very unusual scales: a diamond-shaped base supporting a prominent flange or shelf that projects at right angles to the body. In other features, especially head spination, general body shape and origin of the dorsal fin on the cranium, the specimen resembled other aploactinids. It does not appear closely related to any known species, and we describe it below as a new species in a new genus.

NEOAPLOACTIS ESCHMEYER & ALLEN, NEW GENUS

Type species

Neoaploactis tridorsalis Eschmeyer & Allen.

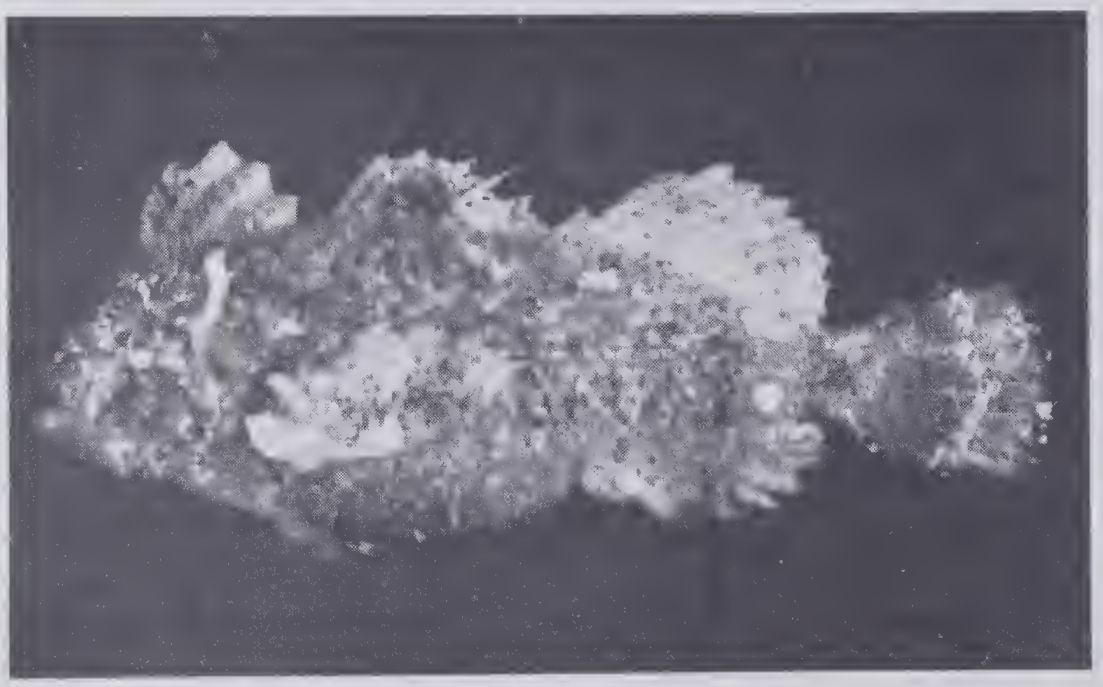

Fig. 1: *Neoaploactis tridorsalis*, holotype, WAM P25529-001, 34 mm SL, photo taken from the fresh specimen.

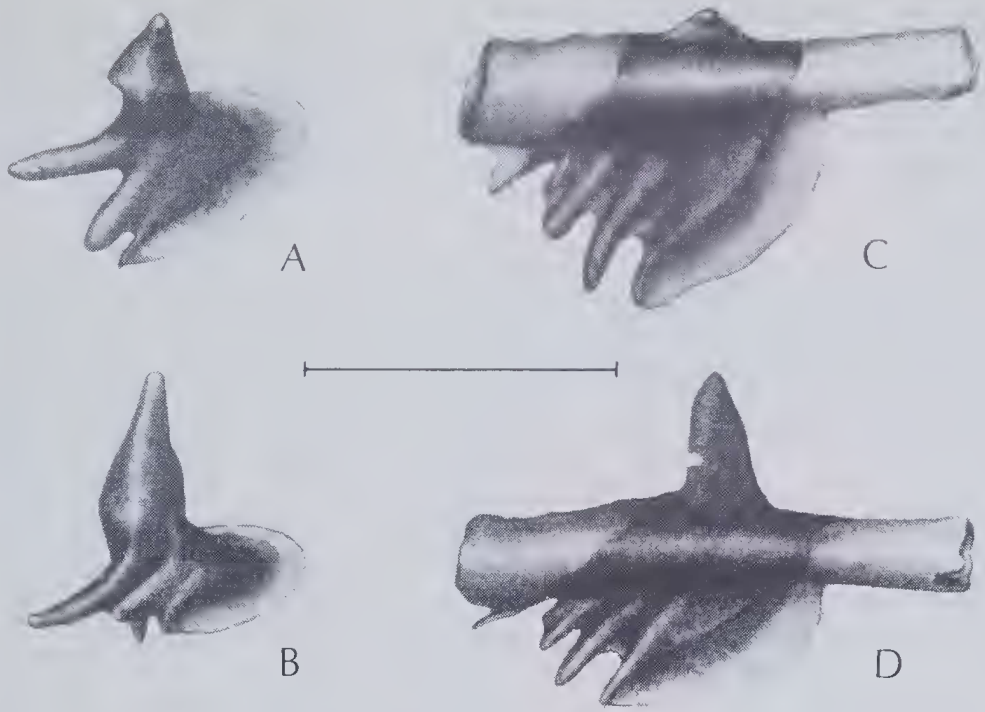

Fig. 2: Scales in holotype of *Neoaploactis tridorsalis*. (A) Dorsal view and (B) oblique view of body scale from vicinity of fourth lateral line scale on right side. (C) Dorsal view and (D) oblique view of fourth lateral line scale on right side. Camera lucida drawings; line is 1 mm; anterior to right; darker areas more heavily ossified. (See text for description of scales.)

Diagnosis

A genus of aploactinid fishes that is uniquely characterized by the presence of three dorsal fins and by peculiar ridged scales. See also the description below of *N. tridorsalis*, the only known member of the genus.

Name

The genus is named *Neoaploactis*, from *neo* (new) + *aploactis*, with reference to its newness and uniqueness in relation to other aploactinids.

Neoaploactis tridorsalis Eschmeyer & Allen, new species.

No literature applies to this species.

Holotype

WAM P25529-001, 34.0 mm SL, 42.3 mm TL, Great Barrier Reef off Queensland, Australia, One Tree Island, Capricorn Group, 3-4 m, rotenone station, G.R. Allen, 15 Jan. 1973.

Diagnosis

Dorsal IV + VII + I,9; anal II,8; pectoral 12; pelvic I,3; caudal 16. First 4 dorsal spines as a separate fin separated by scales from succeeding spines; strong notch between spines 11 and 12. Scales highly modified, with a strong median shelflike projection.

Description

A compressed fish having the general physiognomy of an aploactinid. The first dorsal spine originates over the middle of the eye. Second spine longest. Initial 4 spines form a separate fin separated by scales from the fifth spine. Fifth through eleventh spines form a separate rounded fin, separated from the succeeding spine by a nearly complete notch. Twelfth spine about same length as ninth spine and at the leading edge of the soft dorsal fin. Soft dorsal fin rays long, about equal in length to second spine. Soft rays unbranched, total 9, last apparently single and not a double ray as in some aploactinids. Two short anal spines, about $^1/_2$ length of first anal soft ray; anal soft rays 8, unbranched, last ray single. Total caudal ray count 16, including 1 short ray both above and below, all unbranched. Pectoral rays unbranched, total rays 12, longest at middle of fin. Pelvic fin with one spine and 3 soft rays, second soft ray moderately longer than first soft ray, third soft ray short, about $^1/_2$ length of first soft ray. Vertebrae 26. Gill rakers on outside of first arch rudimentary, difficult to count, total 14 (left side).

Body covered with longitudinal rows of highly modified scales (Fig. 2), rows somewhat irregular. Scale base elongate, diamond-shaped, embedded in thick skin; exposed part of scale a broad, flat projection at right angle to body. Most with 2 points at edge of projection. Lateral line scales (Fig. 2C, D) tubed, but with a similar lateral shelflike projection; 11 lateral line scales on each side. Each scale separated from nearby scales by skin. Scales moveable in a horizontal plane, more easily depressed rearward than anteriorly. Similar scales, but smaller, on belly and breast and on the cheek and opercle; remainder of head unscaled. About 20 scale rows on body between last dorsal spine and first anal spine. Most ridges and spines on the underside of the head and the pectoral fin covered with small rounded skin projections; similar but more elaborate skin flaps on dorsal spines. Anterior nostril with a long tube; posterior nostril with a short tube, about $^1/_2$ the length of anterior one. Pores of head lateralis system large, especially those of lower jaw.

Head spination similar to that of most aploactinids. Lachrymal bone (infraorbital 1) with 2 prominent diverging spines, a spinous lump anterior to

first spine, a second lateral lump at base of diverging spines, a small lump and ridge extending to front of orbit, and 2 more lumps anterior to these. Suborbital ridge (infraorbitals 2-3) with 2 knobby lumps, first under anterior part of eye, second under rear of orbit. Preopercle with 5 spines, first longest and reaching nearly across opercle, remainder shorter and more knobby, fifth nearly imperceptible. Nasal bones moveable, ridgelike, with 2 lumps posteriorly. Frontal ridges fairly well developed, with a channel or depression between, ending posteriorly at right angles to a ridge which crosses the head at level of midorbits. A large spine at upper posterior border of orbit, preceded by a smaller lump over midorbit. A strong parietal ridge present, with a pterotic ridge at midorbit level behind eye. Strong supracleithral ridge above opercle. Two low, knobby opercular spines. Cleithral spine elongate, pointing out from body.

Colour in preservative similar to that in Figure 1 of the fresh specimen. Body tan with paler large spots. Melanophores contracted, appearing as dots under magnification. Head darker brown, marbled and spotted with clear areas; most prominent feature a clear vertical stripe behind the eye. Small clear bars radiate from eye. Fins nearly transparent, with dusky smudges. Colour in life not recorded at capture.

Measurements in mm are as follows: standard length 34.0, total length 42.3, head 11.2, snout 3.7, orbit 3.0, interorbital width 3.0, jaw 3.7, postorbital 4.5, predorsal-fin 6.1, body depth at pelvic base 11.8, greatest body depth 12.4, anal fin height (anterior base to posterior tip of fin) 11.3, caudal fin 8.8, pectoral fin (upper base to apex) 10.1, pelvic fin 6.4, first dorsal spine 5.6, second dorsal spine 6.3, fifth dorsal spine 3.8, twelfth dorsal spine 2.5, first anal spine 2.2, second anal spine 2.8, dorsal fin base (1st spine to end of soft dorsal) 26.1, anal fin base 8.1.

Name

The specific name *tridorsalis* refers to the presence of 3 dorsal fins in this species.

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